
Diabetic neuropathy

Summary

- Diabetes is the most common cause of neuropathy.
 - Half of all people with diabetes will develop neuropathy.
 - The nerves of the feet are most commonly affected by diabetic neuropathy.
 - The feet are usually numb, although many people also experience significant discomfort and pain.
 - Most people with diabetic neuropathy are unaware that they have nerve damage, until it is picked up on routine screening by their doctor or when they develop complications.
 - Although there is no cure, early diagnosis and treatment can improve quality of life and reduce the risk of further complications.
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Neuropathy means damage to the nerves of the peripheral nervous system. Diabetes is the most common cause of neuropathy. It most commonly affects the nerves to the feet and hands, but any nerves can be involved, including those that control internal organs (autonomic nerves).

Up to half of all people with diabetes develop neuropathy during the course of their disease. There is no cure. Management aims to ease symptoms and reduce the risk of further complications.

Symptoms of diabetic neuropathy

Most people with diabetic neuropathy are unaware that they have nerve damage, until it is picked up on routine screening by their doctor.

Typical symptoms vary from person to person, but may include one or more of numbness, pins and needles, tingling, discomfort, or weakness, which usually begin in both feet and spread symmetrically up the legs (like stockings).

About half of those people with diabetic neuropathy experience significant pain in their feet and increased sensitivity to painful stimuli (known as neuropathic pain or painful neuropathy). Neuropathic pain is often worse at night, and can seriously disrupt sleep patterns.

These symptoms can have a major effect on health and wellbeing because:

- balance problems increase the risk of falls
- weakness leads to deformities in the feet, like claw or hammer toes, and bunions
- numbness means damage to the feet may go unnoticed.

Together, these can lead to the formation of a foot ulcer.

Autonomic neuropathy

The autonomic nerves, which regulate the functioning of organs and glands without our conscious effort, can also be damaged by diabetes. This is called autonomic neuropathy and may cause a range of problems including:

- slow emptying of the stomach leading to nausea, heartburn or pain
- constipation
- bladder problems

- difficulty achieving and/or maintaining an erection
- difficulty with blood pressure control
- irregular heart beat (known as 'arrhythmia').

Causes of diabetic neuropathy

High glucose and lipid (fat) levels in the blood, and the toxic byproducts they generate through their metabolism, are thought to be the major causes of neuropathy associated with diabetes. However, good glucose control in people with type 1 diabetes can reduce neuropathy by 60 per cent.

The benefits of good glucose control in people with type 2 diabetes are more modest. Improving lipid levels may also reduce the incidence of nerve damage in people with type 2 diabetes.

Risk factors for diabetic neuropathy

The longer a person has diabetes and the worse the control of their diabetes, the more likely they will develop diabetic neuropathy.

Those people experiencing complications of their diabetes elsewhere in their body (such as in the kidneys, heart or eyes) are also more likely to have or develop neuropathy, as the same factors that cause these problems also contribute to neuropathy. Smoking, high blood pressure and being overweight also make it more likely that people with diabetes will get nerve damage.

Diagnosis of diabetic neuropathy

The diagnosis of diabetic neuropathy may include:

- taking a medical history for symptoms typical of neuropathy
- checking your feet and legs for responses to stimuli such as temperature, light touch, pain, movement and vibration
- checking the reflexes at your ankles and knees
- tests to exclude other possible causes of neuropathy (such as low vitamin B₁ or thiamine levels).

Treatment for diabetic neuropathy

Damaged nerves cannot be repaired. However, the risk of further complications in the feet can be reduced by:

- vigilance – regular inspection of the feet for early signs of trouble or potential problem areas (such as breaks in skin, signs of infection or deformity)
- getting help at the first sign of trouble – early treatment of foot ulcers gives the best chance that they will heal
- good foot and nail hygiene
- choosing appropriate socks and shoes properly fitted to the shape of your foot
- avoiding activities that may injure the feet. Check shoes for stones, sticks and other foreign objects that might hurt your feet every time before putting your shoes on.

A referral to a podiatrist may be appropriate for assessment and ongoing preventive management of foot complications.

Treatment for painful neuropathy

Appropriate pain management can significantly improve the lives of people with diabetes and painful neuropathy. A number of different medications are available, which produce comparable effects.

Most people would begin with one of either:

- serotonin-norepinephrine reuptake inhibitors (such as venlafaxine, duloxetine)
- tricyclic antidepressants (such as amitriptyline)
- anti-epileptics (such as gabapentin, pregabalin).

If one type fails to provide the response required, it is usual to switch to or add another. If all three agents alone or in combination fail, then opioid analgesics and tramadol may be used as second-line treatments.

Prevention of diabetic neuropathy

Be guided by your doctor, but general suggestions to reduce the risk of diabetic neuropathy include:

- Maintain blood glucose levels within the target ranges.
- Exercise regularly.
- Maintain a healthy weight for your height.
- Stop smoking.
- Reduce your blood pressure and lipid (fat) levels through diet and lifestyle changes, and medication where appropriate
- Consult your doctor promptly if you have symptoms including pain, numbness or tingling in your hands or feet.
- Have your feet checked at least yearly by your doctor, podiatrist or diabetes educator, or more often if you have signs of problems with your feet or other complications of your diabetes.

Where to get help

- Your doctor
- Podiatrist
- Diabetes educator
- Dietitians Association of Australia Tel. 1800 812 942
- Quitline Tel. 13 7848 (13 QUIT)
- Diabetes Australia Victoria Tel. 13 RISK (13 7475)
- Baker IDI Heart and Diabetes Institute Tel. (03) 9258 5000

Things to remember

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This page has been produced in consultation with and approved by:

Baker Heart and Diabetes Institute

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